

by the city of Berlin on the Continent. The sewage farms at Berlin have successfully dealt with the sewage of 337,500 people—nearly twice the population of Birmingham—whilst London is still allowing to run to waste an enormous amount of valuable material, at the same time polluting a river—the highway of its commerce—to an extent never previously dreamt of.

Processes of precipitating sewage by chemicals are now known to exert only a partially purifying influence. The best process yet discovered can do little more than free the sewage from its suspended matters, allowing all the dissolved constituents of sewage—by far the most valuable portion agriculturally and chemically—to pass away in the effluent. Lime dissolved as lime water, sulphate of alumina, and perhaps proto-sulphate of iron, taken together and added to the sewage in the proportion of not more than 10 to 15 grains to the gallon, are the best, most economical, and most effective precipitants. Other more valuable substances, added to the sewage with the view of increasing the value of the precipitated sludge or manure, are in large proportion lost in the effluent water, and as they do not assist precipitation might just as well be added to the sludge afterwards, if fortification is required. Half-a-crown and no more is the value per ton of the precipitated solids of sewage. This value will generally pay for the cost of their carriage a mile or so in agricultural districts, but no further.

A great improvement in dealing with the semi-liquid sewage sludge has been lately effected. The sludge containing over 90 per cent. of water was formerly allowed to dry in the air or in a drying chamber, and a most intolerable nuisance resulted. It is now possible by means of hydraulic filter-presses to convert the semi-liquid sludge into solid cakes containing 40 to 50 per cent. of water, and in this form it is innocuous to the senses, and can be readily conveyed away by cartage.

The knowledge already acquired demands that now, and in the future, the sewage of towns should, whenever possible, be utilised on land in the production of crops or dairy produce; failing this, the sewage should be freed from its solids by precipitation, and subsequently purified on land laid out as filter-beds, efficient purification, and not the production of crops, being alone aimed at. If application to land is impossible, then precipitating processes alone must be relied on, and where the sewage can be turned into the sea, and effectually got rid of without nuisance, there it may be allowable to waste valuable matter which cannot be utilised except at a cost destructive of all profits from its utilisation.

SALE OF THE JARDINE ORNITHOLOGICAL COLLECTION

THE dispersal of an ornithological collection so large, and of such historic interest, as that formed by the late Sir William Jardine, F.R.S., is an event deserving of notice. The collection was begun more than sixty years since, and was the occupation of half a century's diligent care. From its contents were described, and often figured, a majority of the species treated of in the late baronet's many works, ranging from the "Illustrations of Ornithology," commenced in 1825, to papers in journals of comparatively recent date, and it included a greater number of "type-specimens" than any other that has ever been brought to the hammer.

On Sir William's death in November 1874, it was understood that the collection would be speedily sold, and a strong hope was entertained by ornithologists that it should pass, *as a whole*, into one or other of the great museums of this country. However, this was not to be. The comparatively small "British" portion was, after a time, purchased by the Museum of Science and Art in Edinburgh, a very fitting destination for it; but the rest, consisting of between 8000 and 9000 specimens,

remained in the hands of Sir William's heir. At last that gentleman determined to dispose of it by auction, and for that purpose selected Messrs. Puttick and Simpson, the well-known firm of Leicester Square, by whom it was accordingly sold on Thursday, June 17 last. However, the attendance at the sale was but small, and except in a very few instances, the prices obtained were below the average often reached at sales of collections in every way inferior in interest, while not one of the lots attained a price that may be called high. There was a certain competition among a few experts, but even this was not carried to any excess, and as a rule the prizes of the collection were knocked down for very small sums. It is a satisfaction to read, however, that most of the "type-specimens" were secured for the British Museum or for that of the University of Cambridge; but few, it is believed, falling into the hands of dealers, and hardly any, as was to be greatly feared, into those of the "plume-trade." The low prices realised were due, no doubt, to the fact that notice of the sale had reached few amateur collectors in time, and added to this was the fact, obvious on inspection, that the sale catalogue supplied very little of the information which collectors require. It was the general impression in the auction-room at the time, and has since been confirmed by the opinion of practical ornithologists, that had the catalogue set forth the special quality of the specimens, and the sale been made known more widely, a very different result would have followed, and something like the competition which attended the great sale of Mr. Bullock's museum in 1819 might have been attained, for collectors are as keen now as ever, and such a chance as this is not likely to occur again to the present generation. The long period, too, which has elapsed since Sir William Jardine's death (recorded in NATURE, vol. xi. p. 74) possibly helped also to divest the sale of his collection from a good deal of the interest which it would have inspired had its dispersal taken place soon after his decease, for memories are short in these days. The agent of the British Museum has to be congratulated for his promptness in recognising and securing at a nominal price for that institution one "type-specimen" (that of Bulwer's petrel), which, not being mentioned in the catalogue nor occurring in its expected place among the other specimens of its family, had escaped the notice of all the other ornithologists who had viewed the collection.

NOTES

AMONG the Colonials on whom honour has been conferred are Dr. Julius Von Haast, F.R.S., who has been made K.C.M.G., and Dr. A. R. C. Selwyn, who has been made C.M.G.; Dr. G. Watt, of the Indian Department of Revenue and Agriculture has been made a C.I.E.

PROF. PAUL WAGNER, on behalf of the Comité Salitéro, sends us the following statement as to the result of the nitrate of soda competition. Carrying out the scheme of prizes offered by the Committee of the Saltpetre Producers' Association (Comité Salitéro at Iquique, Chili) for the best popular essay treating of the importance of nitrate of soda as a manure, and the best mode of its application, the judges—Prof. L. Grandcau, Nancy (France); Prof. Adolf. Mayer, Wageningen (Holland); Prof. A. Petermann, Genbloux (Belgium); Prof. G. Thoms, Riga (Russia); Prof. Paul Wagner, Darmstadt (Germany); Mr. R. Warrington, Rothamsted (England)—have examined the essays sent in, namely, thirteen German, thirteen English, and four French, and have made the following awards:—(1) To the essay with the motto, "Gau, theurer Freund, is alle Theorie," a partial prize of 350*l.* (7000 marks); (2) to the essay with the motto, "Pour pratiquer l'agriculture . . ." a partial prize of 150*l.* (3000 marks). On opening the accompanying envelope, the author of the first essay was found to be Dr. A. Stutzer.

Principal of the Agricultural Experimental Station at Bonn; and the author of the second essay, M. A. Damseaux, Professor in the Agricultural Academy at Gembloux. It should be remembered that essays competing for the second part of the prize offered—namely, 500*l.* for the best essay treating of the same subject, on the basis of *new, personal, experimental investigations*—must be sent to one of the above-named judges, on or before January 1, 1887.

THE Local Committee for the Birmingham meeting of the British Association have their arrangements well forward. A considerable contingent of Canadian and other colonial men of science will no doubt be present, and every effort will be made to extend a hospitable welcome to them and to all the members of the Association who may be able to visit Birmingham. The Great Western, the London and North-Western, and the Midland Railway Companies offer exceptional facilities to intending visitors. The Council of the Birmingham and Midland Institute have placed their spacious lecture theatre, with its convenient suite of rooms attached, at the disposal of the Local Committee as a reception-room, officers' and ladies' rooms, &c. The meetings of the Sections will be held in the Council House, the Mason Science College, the Medical Institute, the Birmingham Municipal School of Art, and in the offices of the Board of Guardians—buildings which closely adjoin each other; and the use of rooms in the Council House has also been granted by the Mayor for other purposes. The Town Hall will be utilised for the evening meetings. Various clubs and scientific and literary institutions will be thrown open to members and associates by the courteous invitation of the governing bodies, and the Committee of the Birmingham Botanical and Horticultural Society will open their Gardens during the week of the meeting to members and associates. The Committee are also preparing an extensive exhibition of the products of local industries and of local manufacturing processes, which will be held in Bingley Hall. A collection of the flora and fauna, together with the rocks and fossils of the district, will be shown in connection with this exhibition. The Committee are arranging a series of excursions to various localities of great beauty and interest, and many kind offers of hospitality have been received in connection with the projected excursions. The Committee are engaged in the preparation of a guide-book of the town, which will include an account of its history and antiquities, trade and manufactures, a description of its modern government, papers on the geology and physiography (accompanied by a geological map), and the zoology and botany of the district.

SOME of the friends of the late Dr. Walter Flight are anxious to collect a fund to be invested for the benefit of his widow and children, who have been left with extremely inadequate provision. A Committee has been formed with the Rev. Prof. Bonney, F.R.S., as chairman, to carry out this object. The honorary treasurer is Mr. L. Fletcher, Natural History Museum, Cromwell Road, S.W., and the honorary secretaries T. W. Carmalt Jones, M.D., 6, Westbourne Street, Hyde Park, W., and John M. Thomson, King's College, Strand, W.C. Contributions may be paid to the account of the "Flight Memorial Fund" with Messrs. Roberts, Lubbock, and Co., to the honorary treasurer, or either of the honorary secretaries. We need not say a word to impress upon our readers how deserving is such a case as this.

A MOVEMENT is on foot for obtaining subscriptions to purchase an annuity for Mr. J. B. Dancer, who has done so much for the improvement of photography. But photography is only one of the many arts and sciences indebted to him. There is the stereoscopic camera with twin lenses, which he was the first to make. He invented microscopic photographs, which so much delighted and astonished us twenty-five or thirty years ago. He also introduced photography to the magic

lantern, being the first to show a photographic transparency on a screen. The lantern itself is also indebted to him, not only in its optical parts and in its construction generally, but also particularly in the application of the oxy-hydrogen light, and for a dissolving gas tap, which saves half the gases and produces the best dissolving effect. Then there should be mentioned, as of much greater importance than the above, the automatic "contact-breaker," used probably by the million at this moment, in every induction coil in the world. Prior to Mr. Dancer's invention, contact used to be made and unmade by hand, in a vessel containing mercury. The first helical coil with the vibrating interrupter was constructed by Mr. Dancer, and was exhibited long after by him at one of the *soirées* of the British Association, when the meeting was held in Manchester. When Mr. Dancer established himself as an optician in Manchester, his presence soon made itself felt amongst the few microscopists then living in the district. Good microscopes were then costly, and worthless ones very common. Mr. Dancer successively brought out several forms of instruments, as excellent in their mechanical and optical arrangements as they were moderate in price. It is sad to have to say that, notwithstanding Mr. Dancer's talents and achievements, he is now living in very straitened circumstances, is moreover afflicted with almost total blindness, and therefore unable to follow the optical business to which his life has been devoted. It is not an unusual thing for a man of great mechanical ingenuity and skill to be an indifferent man of the world, and so it has been with him; as a business man he has been a failure. He has made improvement after improvement, invention after invention, any one of which might in "pushing" hands have made a fortune; but, more interested in science than in money-making, he has allowed the golden chances to become public property, and has thus remained poor himself, while the world has reaped the advantage of his labours. Mr. Dancer is now in his seventy-fourth year, and, it is to be hoped that in his hour of darkness the world will pay back to him something for that which it has freely received at his hands. A Committee has been formed for the purpose of receiving subscriptions, and we commend the movement strongly to the support of our readers. The Committee are: J. P. Joule, LL.D., F.R.S., Sale; Prof. W. C. Williamson, LL.D., F.R.S., Owens College; Prof. Balfour Stewart, LL.D., F.R.S., Owens College; John Dale, F.C.S., Cornbrook, Manchester; Leo H. Grindon, Manchester; S. Platt, J.P., Oldham; Charles Bailey, Hon. Treasurer Manchester Literary and Philosophical Society; James Birchall, Hon. Sec. Liverpool Literary and Philosophical Society; Abel Heywood, jun., Higher Broughton (Hon. Sec. *pro tem.*).

DR. ULLMANN, of Vienna University, who spent several weeks with Dr. Pasteur in Paris, and brought back some of the virus with him, began on Monday, in the presence of several eminent professors, to inoculate against hydrophobia. He had for patients thirteen men bitten by rabid dogs and one woman bitten by a rabid pig.

WE regret to announce the death, on the 23rd ult., at his residence, Glenoir, Galway, of William King, D.Sc., Emeritus Professor of Geology, Mineralogy, and Natural History in the Queen's College, Galway, in his seventy-eighth year. Upon the foundation of the Queen's Colleges in Ireland, in 1849, Dr. King was selected to fill the Chair of Geology in the Galway College, a post that he occupied, and of which he fulfilled the duties most assiduously and laboriously, until 1883. In that year, owing to a severe attack of paralysis, Dr. King was most reluctantly obliged to relinquish his professorial duties. In 1882 the additional performance of the business of the Natural History Chair devolved upon him: the double task proved too onerous. Subsequent to his resignation, the Corporate Body of the College presented Dr. King with an address, as a testimony

of their esteem for his devoted services, of which latter the Geological Museum in the College is a lasting record. Numerous volumes and also pamphlets upon various branches of geology bear witness to his attainments and indefatigable zeal.

FROM the report just issued by the Swedish Academy of Sciences we gather some interesting particulars of the scientific work prosecuted under the auspices of this Institution last year. On the recommendation of the Academy the following sums were granted by the Government towards scientific research, &c. :—A sum of 150*l.* to the Academy's Zoological Station in the province of Bohus; 200*l.* to Prof. H. Gyldeén for the development of his theory respecting the movements of the larger planets; 250*l.* towards the publication of the *Acta Mathematica*; 300*l.* towards the purchase of a zoological and ethnographical collection of objects brought by Dr. C. Bovallius from the West Indies and Central America; 60*l.* towards Prof. Liljeborg's work, "Scandinavian Fishes"; and two sums of 50*l.* each towards Herr Westerlund's work, "Fauna der in der paläarktischen Region lebende Binnenconchylien," and Dr. Lindeberg's exsiccate work on the Rubi of Scandinavia. In addition to these sums, various smaller amounts were granted by the Academy to a number of gentlemen towards scientific researches, as, for instance, for the study of certain algae on the coast of Bohus, for the study of the Scanian moss flora, for the study of the anatomy and histology of the marine Annelidæ in the same province, and that of the Gastropoda, &c. Of other scientific work continued last year may be mentioned the work on the great publication recording the scientific of the expedition to Spitzbergen, 1882–83, of which the researches on the aurora borealis and the electricity of the air are now in the press, and the rest, on other branches of science, will shortly follow; and further, the arrangements of the valuable collection for the State Museum of ethnographical objects from all parts of the world—some 6000 in number—made by Dr. Stolpe during the voyage of the corvette *Vanadis* round the world. The Academy also purchased a large estate near Stockholm with the funds bequeathed by Prof. Bergius for the establishment of a horticultural garden, similar to that of Kew, to be under the supervision of the Academy. An important change has been decided on with reference to the publishing of the Academy's *Journal*, viz. to divide it into two parts—Proceedings and Appendix—the former to be issued monthly, containing reports of meetings and short papers and the latter to be issued at intervals, containing longer and more scientific papers; and these will be divided into four sections, each embracing a certain branch of science, which will enable a specialist to find at once the paper desired, and not necessitate the purchase of the whole yearly series.

AN Australasian Meteorological Society has been formed at Adelaide, South Australia.

ON Edison's system of telegraphing with trains in motion, the *Scientific American* (February 20, 1886) says :—The receiving apparatus at both the car end and the fixed end of the line is a telephone. The sending apparatus is also similar at both ends, and consists of an interrupter or vibrating tongue driven by an independent battery, and making 500 vibrations per minute; this vibrator is in circuit with the line battery, an ordinary Morse key, and the primary of an induction coil. The secondary of the induction coil on the car is in connection with the tin covering the entire roof of one or more cars; the secondary coil at the fixed station is in connection either with condensers or with other induction coils, which in turn are in connection with the ordinary line wires by the side of the track. Suppose a message to be sent from the fixed station to the car. The vibrator is always working, but till the Morse key is put down no current passes. The message is sent by the ordinary Morse signal, only

instead of a continuous current being sent to line each time, it is an alternating one; this induces a current in the secondary coil, and through it the condensers, for example, are charged alternately. The charge of the condensers is propagated through the line wires with which they are in connection, and influences the tin roof of the car, and ultimately the telephone by which the signals are read.

MR. BLANFORD, Meteorological Reporter to the Government of India, has issued a memorandum on the Himalayan snowfall in the past season. A few years ago, it will be remembered, Mr. Blanford propounded a theory of a connection between this snowfall and the monsoon, to the effect that the later and heavier the snowfall in winter and spring the later and feebler would be the following monsoon. The forecasts based on this theory were fairly accurate last year, and accordingly his forecast this year was looked forward to with anxiety on account of the great value of early and copious rain to Indian agriculture. This year Mr. Blanford arrives at the conclusion that, although a considerable amount of snow fell in the North-Western Himalayas and the hills of Eastern Afghanistan, during the winter and spring, especially in January and February, there has been on the whole less than in the previous year. The snow range, as seen from Simla, is less thickly covered than it was in 1885, and the snow is at a higher level. The winds have been less northerly than usual on the west coast, and more decidedly southerly and easterly in the Punjab. Hence he thinks that there will be no retardation of the monsoon on the Bombay side; and the barometric levels are favourable to an advance of the easterly branch of the monsoon, so that no apprehension need be felt about the rains in Upper India.

AT the meeting of the Royal Society of Tasmania on April 13, the Curator of the Museum stated that during the past month Mr. Vimpany had captured a black snake (*Hoplocephalus curtus*) at Longley, measuring about 4 feet 3 inches in length. On opening it the unprecedented number of 109 young ones were found in her. The specimens now before the meeting are the largest ones, the measurement being from 8½ inches to ¾ of an inch in length. Mr. Morton stated that the greatest number he had known previously to be taken from a similar snake was 32, but he had been informed by a resident of Tasmania that over 70 had been taken from a similar species.

IN the *Stonyhurst Magazine* for May 1886, is a list of the flora of the Stonyhurst district. It contains a list of all plants of whose occurrence within a radius of ten miles from Stonyhurst satisfactory record can be found.

FROM a communication by M. Nikolsky to the St. Petersburg Society of Naturalists (vol. xvi. 2), it appears that the drying up of Lake Balkhash is going on at a very rapid rate, and so far as the observations of the inhabitants may be relied upon, its level is lowered by no less than two feet every ten years. The maps of 1852 show that a very great reduction of the surface of the lake has taken place during the last thirty years. As to the fauna of Lake Balkhash M. Nikolsky makes the following interesting remarks. It does not include a single species of those fishes which are characteristic of the Aral-Caspian ichthyological region. On the other hand, there is a very great resemblance between the fishes of Lake Balkhash and the lakes on the high plateau of Central Asia, for instance, of Lob-nor. Three species are common to the Ili River and the Tarim, tributary of Lob-nor. M. Nikolsky concludes from the ichthyological data that there is no ground to admit of any direct connection between Lake Balkhash and Lake Aral. If there ever was a sea which covered the Siberian lowlands as well as the depressions of Lake Balkhash and the Aral-Caspian, the Balkhash was

separated from the latter at a period when the connection between the Aral-Caspian depression and the Arctic Ocean still existed. There was certainly, in recent geological time, a connection between the rivers of the Balkhash basin and those of the Lobnor basin, which connection probably followed the Kunges, the Yulduz, and the Tarim Rivers.

THE total area of the Crown forests of Sweden at the beginning of 1885 was 5,785,535 hectares, being a seventh part of the total forest area of the country. The revenue from the same was a little less in 1885 than in 1884, but this is believed to be only incidental, it having risen from 750,000*l.* in 1880 to 890,000*l.* in 1882, and 1,120,000*l.* in 1884.

WE have received part 2, vol. iv. of the *Transactions* of the Norfolk and Norwich Naturalists' Society, containing the papers selected for publication and the address read by the President, Major Feilden, F.G.S., at the seventeenth annual meeting of the Society. From the report it appears that the Society now numbers 260 members, and is both numerically and financially in a very satisfactory condition. For his address Major Feilden chose the fascinating problem of the origin of life, which he strove to show must have had its advent at the poles of the earth, a subject which his study of the fossil and recent fauna of the polar regions as naturalist to the Arctic Expedition of 1875-76 gave him special opportunities of studying. The conclusions to which Major Feilden arrives are that through the secular cooling of our planet the poles became first fitted for the reception of life; that in palæozoic times the North Pole possessed a climate as warm, at least, as that now enjoyed at the equator; that the temperature at the North Pole during the Miocene period, though gradually cooling, supported a flora which spread southwards; and that in all probability animal life likewise originated at the poles, and spread towards the equator. Amongst the published papers, one by Mr. Clement Reid, F.G.S., on the "Flora of the Cromer Forest Bed," is of especial interest. Mr. Reid enumerates sixty species of plants, which he has obtained by the careful washing of clays from various localities near Cromer, and calls attention to the curious fact that all these, with the exception of *Trapa natans*, three firs, and *Isotria lacustris*, are still indigenous to the county of Norfolk, and two-thirds of them are aquatic or marsh plants, identical in species with those found at the present day in almost all the Norfolk morasses. Mr. Edward Bidwell contributes an account of a visit to the Isles of Scilly in the nesting season of 1885; the Rev. H. A. Macpherson a paper on the habits and plumage of the Manx shearwater; Mr. G. Smith some notes on the habits of the Fulmar petrel; meteorological notes by Mr. A. W. Preston; notes on the herring fishery of 1885, by Mr. Southwell; a second paper, by Mr. Reid, on Norfolk amber; and a list of the birds of Norfolk, with remarks, by Messrs. Godney and Southwell; also a valuable paper on the gradual assumption of the adult plumage in the honey buzzard, by Mr. J. H. Godney.

WE have received a "Liste Alphabétique" of the Correspondence of Christian Huygens, which the Dutch Society of Sciences proposes to publish. The list may be obtained from Enschedé and Son, Haarlem.

DR. G. F. MARTINEAU, of Yorke House, Stourport, writes with reference to the article "On the Origin of our Potato," in NATURE of May 6 last, p. 7, that in turning over, the other day, the leaves of the sumptuous "Hortus Eystertensis" of Basil Besler, printed in Nuremberg in 1613, he found an excellent plate of the plant (of which he sends a tracing), with a clear and full description. Certainly it is quite worth while to draw attention to Besler's figure and text, but it tells one nothing new. There are good figures in Gerarde, 1597, and Clusius,

1601, Besler's being 1613. "The potato," another correspondent writes, "is not wild in Virginia; it must have been carried there from Peru and Chili. The only wild United States potatoes are high up in the Rocky Mountains. A. De Candolle's idea is that the potato was first brought to Europe, not by the English, but by the Spaniards."

THE additions to the Zoological Society's Gardens during the past week include a Chimpanzee (*Anthropopithecus troglodytes* ♀) from West Africa, presented by Capt. Reginald E. Firminger; a Rhesus Monkey (*Macacus rhesus* ♂) from India, presented by Mr. G. Ballentyne; a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. S. M. Grove-Grady; a Banded Ichneumon (*Herpestes fasciatus*) from West Africa, presented by Mr. G. F. Stimpson; two Egyptian Geese (*Chenalopex aegyptiaca*) from Africa, presented by Col. Harris Burland; a Larger Hill-Mynah (*Gracula intermedia*) from India, presented by Miss Maud Bendall; a Martinique Gallinule (*Zonornis martinicus*) from South America, presented by Mr. W. J. Rae; Aldrovandi's Skin's (*Plestiodon auratus*) from North-West Africa, presented by the Hon. Walter de Rothschild; a Geometric Tortoise (*Testudo geometrica*), a Semiserrated Tortoise (*Testudo semiserrata*), an Angulated Tortoise (*Chersina angulata*), two Dwarf Chameleons (*Chameleon punilus*), two Keeled Euprepes (*Euprepes carinatus*), a Spotted Slowworm (*Aconias meleagris*), a Bipes (*Scelotes bipes*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; a Sand Lizard (*Lacerta agilis*), European, presented by Master Stanley S. Flower; two Ruffs (*Machates pugnax*), a Common Viper (*Vipera berus*), British, deposited; a Silver-backed Fox (*Canis chama*) from South Africa, twelve Black-tailed Godwits (*Limosa algocephala*), European, purchased; a Thar (*Capra jemlaica*), a Pigmy Hog (*Forcula salvania*), twelve Mandarin Ducks (*Aix galericulata*), a Chilian Pintail (*Dafila spinicauda*), a Red-crested Pochard (*Fuligula rufina*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN

BLACK TRANSIT OF JUPITER'S FOURTH SATELLITE.—The fourth satellite of Jupiter was observed in black transit by Mr. E. E. Barnard of Nashville, Tenn., U.S.A., on May 8 with a 6-inch refractor. It was first noticed as a black spot at 9h. 20m. local mean time. Some little time previous to this it had been looked for on the disk but could not be seen either as a white or dark spot. The satellite was followed until 9h. 43m., and was then very black and rather small and round when best seen.

COMETS BROOKS I. and III.—The following ephemeris for Comet Brooks I. is by Dr. A. Berberich (*Astron. Nachr.*, No. 2731):—

1886	R.A.			Decl.		Log <i>r</i>	Log Δ	Bright- ness
	h.	m.	s.	°	'			
July 3	8	11	33	8	43'6 S.	9'8945	0'1128	2'0
7	8	37	32	9	49'2	9'9405	0'1400	1'4
11	9	0	24	10	37'4	9'9811	0'1680	1'0
15	9	20	32	11	13'6	0'0172	0'1957	0'8
19	9	38	22	11	41'5	0'0498	0'2227	0'6
23	9	54	15	12	3'9	0'0794	0'2487	0'5
27	10	8	30	12	22'7	0'1064	0'2734	0'4
31	10	21	25	12	39'1 S.	0'1314	0'2969	0'3

The brightness on April 29 is taken as unity.

Comet Brooks III. is now very faint, and will be soon altogether out of sight. Dr. S. Oppenheim gives (*Astron. Nachr.*, No. 2735) the following places for Berlin midnight on July 4 and 8:—

	h.	m.	s.	Decl.
July 4, R.A.	13	18	40	16° 42'6 S.
8,	13	29	17	18° 48'3 S.

NOVA ORIONIS.—The new star discovered by Mr. J. E. Gore near χ_1 Orionis appears for some unexplained reason to be a difficult object for photometric observations, the estimates of its magnitude made by various observers differing remarkably. Thus Dr. G. Müller found it a little brighter than the 6th magnitude